

Ingenious Ideas for Motorists

How to Check Ignition Timing—An Automatic Light for Luggage Compartments—Timesaving Tools You Can Make

THE ignition system of most cars is so timed that when the spark lever is in full retard position, the spark will occur at top dead center. It is, however, not easy to know just when the breaker points actually part company and cause the spark. You can determine exactly when this happens by the aid of a small mirror. Set it where it will reflect the face of the ammeter, as in Fig. 1, while you turn the hand crank. When the points break and the spark occurs, the ammeter needle will flip back to zero.

You can use this test to check the ignition timing, in which case turn the crank until the needle flips back and then see if the piston is at the top; or to make sure that the piston in any cylinder is at the proper point for setting clearance of the valves. When the spark occurs, both exhaust and intake valves are, of course, closed.

An Automatic Light

NO NEED to fish around in the dark trying to find something in the luggage compartment. You can easily arrange an automatic light which will go on when the trapdoor is lifted, and go out when you close it, as in Fig. 2. A socket of the bayonet type to hold a headlight bulb is attached underneath the front edge of the door opening, and a stop-light switch is attached at a point where it can be connected by means of a chain to the hinge or to a screw eye in the door.

The chain should be adjusted with enough slack so that when the door is in a fully opened position, the switch will be thrown on. Run a wire from the ungrounded battery terminal to one terminal of the socket, connect the other terminal of the socket to one terminal of the stop-light switch, and ground the other terminal of the switch to the nearest point on the metal frame of the car.

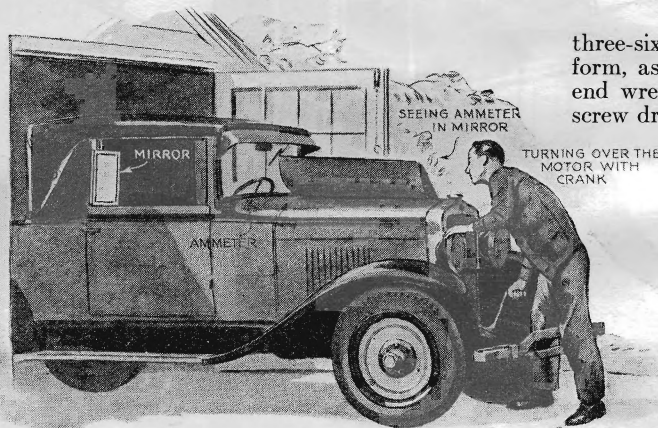


Fig. 1. By watching the ammeter needle in a mirror, as shown, you can see when spark occurs and check the timing.

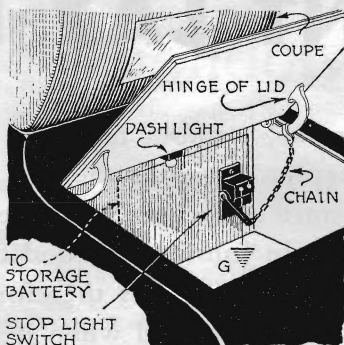


Fig. 2. Automatic light for luggage compartment goes on when lid is up.

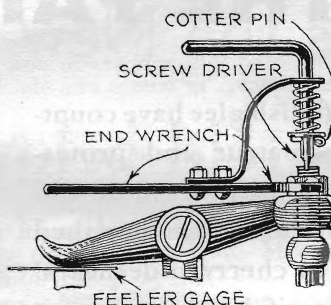


Fig. 3. Timesaving tool for adjusting overhead valves fitted with slotted bolt and lock nut.

Ten Dollars for an Idea!

H. T. Goshon, of Pasadena, Calif., wins this month's \$10 prize for his suggestion of a valve adjusting tool, shown in Fig. 3. Each month POPULAR SCIENCE MONTHLY awards \$10, in addition to regular space rates, for the best idea sent in for motorists. Other contributions that are published are paid for at the usual rates.

Valve Adjusting Tool

FIGURE 3 shows a homemade tool that will be a timesaver for either the garage mechanic or the motorist who does his own repairing in adjusting overhead valves that are fitted with a slotted bolt and a lock nut. Its advantage is that you do not have to remove the screw driver from the slot each time you test the clearance between the valve stem and the end of the rocker arm. The spring holds it securely in the slot.

To make this tool, take an end wrench that fits the lock nut. Bend a piece of

three-sixteenth-inch cold rolled stock into form, as shown, and bolt the end to the end wrench after drilling a hole for the screw driver bit. A cotter pin, a washer, and a spring complete the assembly.

To use the tool, fit the wrench over the lock nut while pulling the screw driver bit up against the spring. Let the screw driver edge drop into the slot, loosen the lock nut, test the clearance while still holding the wrench in place, turn screw driver to change clearance, and when you have it right hold screw driver in the correct position with one hand while you tighten the lock nut with the other.

This tool has saved much time in the repairing of cars with overhead-valve motors.

Spring Compressor

IF YOU have no spring compressing tool and you wish to remove the retaining pin that fits through a slot in the overhead type of valve spring, you can use a pair of end cutting pliers, as shown in Fig. 4. Into holes drilled in a small piece of wood, set the handle ends of the pliers

just far enough apart so that the jaws will clear the valve stem. All that is necessary then is to press down on the wooden handle and remove the pin. Grip a leg of the pliers between the thumb and first finger while you are pressing down to avoid pinching your finger if the pliers slip sidewise.

A Simple Hood Protector

WHILE gasoline has practically no effect on the lacquers used on modern automobiles, it does leave marks which must be polished off. If your car is fitted with a gasoline tank under the cowl, you can avoid spotting by making a protector as shown in Fig. 5. The hole in the protector should fit tightly around the filler opening.

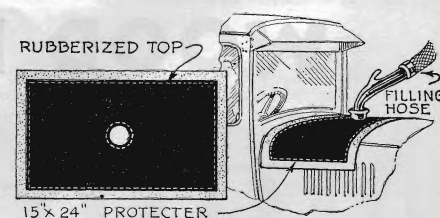


Fig. 5. How to protect automobile finish from gasoline stains when the tank is under the cowl.

Fig. 4. Small piece of wood converts pliers into spring compressing tool.